# Legal & Data Governance

##### Session 1.2 (SEMANTiCS)

#### Time: Thursday, September 21, 2023 - 10:45 to 13:00

#### Chair: Marco Brattinga, MSc, Ordina

## **Talks**

### The FLINT ontology: an actor-based model of legal relations

Recording and documenting human and AI-driven normative decision-making processes has so far been highly challenging. We focus on the challenge of normative coordination: The process by which stakeholders in a community understand and agree what norms they abide by. Our aim is to develop and formalize the FLINT language, which allows a high-level description of normative systems.FLINT enables legal experts to agree on norms, while also serving as a basis for technical implementation. Our contribution consists of the development of an ontology for FLINT and its RDF/OWL implementation which we have made openly accessible. We designed the ontology on the basis of competency questions. Additionally, we validated the ontology by modeling example cases and using the ontology's data model in software tooling.

| Giulia BiagioniTNO[Affiliation page](https://www.tno.nl/en/) | Giulia Biagioni is a scientist at TNO, The Netherlands Organization for Applied Scientific Research where she works in the area of knowledge graph development and implementation of semantic technologies. Her research interests concern the application and creation of user-friendly semantic technology solutions that can bring users to easily access and share the benefits of scientific advancement. |
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| Thom van GesselTNO[Affiliation page](https://www.tno.nl/en/) | Thom Van Gessel is a scientist at TNO, The Netherlands Organization for Applied Scientific Research. With a background in formal logic, Thom now works on knowledge graphs and reasoning for legal knowledge and normative systems. |

### Semantics for Implementing Data Reuse and Altruism under EU's Data Governance Act

Purpose: Following the impact of the GDPR on the regulation of the use of personal data of European citizens, the European Commission is now focused on implementing a common data strategy to promote the (re)use and sharing of data between citizens, companies and governments while maintaining it under the control of the entities that generated it. In this context, the Data Governance Act (DGA) emphasizes the altruistic reuse of data and the emergence of data intermediaries as trusted entities that do not have an interest in analysing the data itself and act only as enablers of the sharing of data between data holders and data users.

Methodology: In order to address DGA's new requirements, this work investigates how to apply existing Semantic Web vocabularies to (1) generate machine-readable policies for the reuse of public data, (2) specify data altruism consent terms and (3) create uniform registers of data altruism organisations and intermediation services' providers.

Findings: In addition to promoting machine-readability and interoperability, the use of the identified semantic vocabularies eases the modeling of data-sharing policies and consent forms across different use cases and provides a common semantic model to keep a public register of data intermediaries and altruism organisations, as well as records of their activities. Since these vocabularies are openly accessible and easily extendable, the modeling of new terms that cater to DGA-specific requirements is also facilitated.

Value: The main results are an ad-hoc vocabulary with the new terms and examples of usage, which are available at <https://anonymous.4open.science/r/dgaterms-F0C8/>. In future research, this work can be used to automate the generation of documentation for the new DGA data-sharing entities and be extended to deal with requirements from future data-related regulations.

| Beatriz EstevesUniversidad Politécnica de Madrid[Affiliation page](https://www.upm.es/internacional) |
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### Linked Data Budgeting with the HTML Vocabulary

The goal of linked data is to reach full coverage of the entire information landscape. Linked data should start at the data source, and run all the way up to human-readable documents. Current applications of linked data cover the first half of the information landscape: data description, data collection, data integration, and data publication. The second half of the information landscape remains mostly untouched: creating information products, using information products, and tracing information flows.

What is missing is significant linked data support for the second half of the information landscape. This presentation shows the HTML Vocabulary, a new vocabulary that integrates the most widely used formatting technique for human-consumable content with the linked data paradigm. We show how we create budget tables with Linked Data Business Rules (not code) that are part of the vocabulary.

In a budget table, a lot of meaning is encoded in how the table is structured and presented. The HTML Vocabulary allows us to capture structural meaning and presentational meaning in the paradigm of propositional meaning.

The Dutch Ministry of Finance is applying the Linked Data Budgeting approach to generate the National Budget of The Netherlands. We show how generating human-consumable budget tables as linked data allows us to trace information flows from a cell in a budget table, all the way back to the data source, thereby covering the full information landscape in linked data.

| Wouter BeekCo-founder of Triply[Affiliation page](https://triply.cc/) | Wouter Beek is co-founder of Triply BV (<https://triply.cc>), a company that offers Linked Data software and services, and guest-researcher at the Knowledge Representation and Reasoning (KR&R) research group at VU University Amsterdam.  Wouter is interested in the Semantic Web as a platform for knowledge-intensive applications, the deployment of large-scale knowledge bases for innovative reuse, and the interaction between Web semantics and pragmatics. |
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| Flores BakkerDutch Ministry of Finance[Affiliation page](https://www.government.nl/ministries/ministry-of-finance) |  |

### Semantics in Pharma R&D [SP]

Data is the lifeblood of R&D in pharma, and yet fragmentation limits the flows between teams and across phases of research: delaying regulatory reporting, inhibiting data reuse, and limiting insights gained from previous or concurrent trials.

This session, which is applicable to financial services and other industries, will show how semantic building blocks can improve the flow of data, and create semantic data products that drive concrete business outcomes and ensure compliance.

These semantic data products can also combine to form an enterprise semantic layer for the entire R&D lifecycle, improving efficiency and helping to discover new insights.

| David PriceSenior Semantic Solution Architect, TopQuadrant | David Price has 30 years experience in software and engineering data management as an IBM Senior Software Engineer, Eurostep Principle Consultant and now as a Senior Semantic Solution Architect at TopQuadrant. David has experience in creating and applying standards to government and industry problems in the computing, oil and gas, aerospace, defense and pharma industries. |
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